

CLAIMS

What is claimed is:

1. An interface circuit, comprising: means forming a galvanic isolation barrier between a transmission line and a user equipment, and means for detecting, independently from a transmission, the idle or busy state of the line, said detecting means include:

on the line side with respect to the isolation barrier, an oscillating circuit associated with an element detecting that a voltage threshold has been exceeded and only supplying the oscillating circuit when the line state is not busy; and

on the user equipment side, a circuit for detecting the amplitude of an oscillating signal provided by said oscillating circuit and having transited through the isolating means.

2. The interface circuit of claim 1, comprising a detector of the presence of a bell signal on the line, translating as a ripple of high amplitude thereon.

3. The interface circuit of claim 2, wherein the detector and said means for detecting the idle or busy state of the line share the same galvanic isolation means.

4. The interface circuit of claim 3, wherein the detector detects the exceeding of a voltage threshold on the line.

5. The interface circuit of claim 2, comprising means for modulating the supply amplitude of the oscillating circuit according to whether a bell signal is present or not on the line.

6. The interface circuit of claim 1, comprising on the equipment side, an output stage providing two logic signals for the user equipment, said two logic signals providing,

in combination, three states respectively corresponding to an idle state of the line, to a busy state of the line, or to the presence of a bell signal thereon.

7. The interface circuit of claim 1, comprising a means for rectifying the signal present on the line.

8. A circuit for interfacing a transmission line with user equipment, the circuit comprising:

a line condition detecting circuit coupled to the transmission line and configured to detect when the line is busy and not busy and to output a line condition signal;

an oscillator circuit coupled to the line condition detecting circuit and configured to generate an output signal in response to the line condition signal; and

a detector coupled to the user equipment and configured to receive the output signal and to enable the user equipment to use the transmission line in response to the output signal.

9. The circuit of claim 8, further comprising a galvanic isolation circuit coupled to the transmission line and the user equipment and configured to provide galvanic isolation between the oscillator circuit and the detector circuit.

10. The circuit of claim 9, wherein the oscillator circuit is configured to generate the output signal at a first level when the line condition signal indicates the transmission line is not busy and at a second level when the transmission line is busy.

11. The circuit of the claim 10, further comprising a bell-detect circuit having an input coupled to the transmission line and an output coupled to the oscillator circuit, the bell-detect circuit configured to send a bell-detect signal to the oscillator circuit in the presence of a bell signal on the transmission line.

12. The circuit of claim 11, wherein the oscillator circuit is configured to generate the output signal at a third level in response to the bell-detect signal.

13. The circuit of claim 10, wherein the oscillator is configured to generate a null signal when the transmission line is busy, to generate an oscillating signal of a low level when the transmission line is idle, and to generate an oscillating signal of a high level when the transmission line is carrying a bell signal.

14. A method of interfacing a transmission line with user equipment, the method comprising:

galvanically isolating the transmission line from the user equipment;

detecting the condition of the transmission line;

generating an output signal of a first level across the galvanic isolation to the user equipment when the transmission line is not busy and of a second level when the transmission line is busy; and

detecting the output signal on the other side of the galvanic isolation.

15. The method of claim 14, wherein detecting the output signal comprises generating a detect signal in response to detecting the output signal on the other side of the galvanic isolation to control the user equipment such that the user equipment accesses the transmission line when the transmission line is not busy.

16. The method of claim 14, wherein detecting the condition of the transmission line comprises detecting the presence of a bell signal on the transmission line.

17. The method of claim 16, wherein generating an output signal comprises generating an output signal of a third level in response to detection of the bell signal on the transmission line.

18. The method of claim 14, wherein generating an output signal comprises generating a null signal when the transmission line is busy, generating an oscillating signal of a low level when the transmission line is idle, and generating an oscillating signal of a high level when the transmission line is carrying a bell signal.

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